

DLR's COMARS+ Sensor Suite for New Frontiers-4 and Discovery Competed Missions

Completed Technology Project (2016 - 2017)



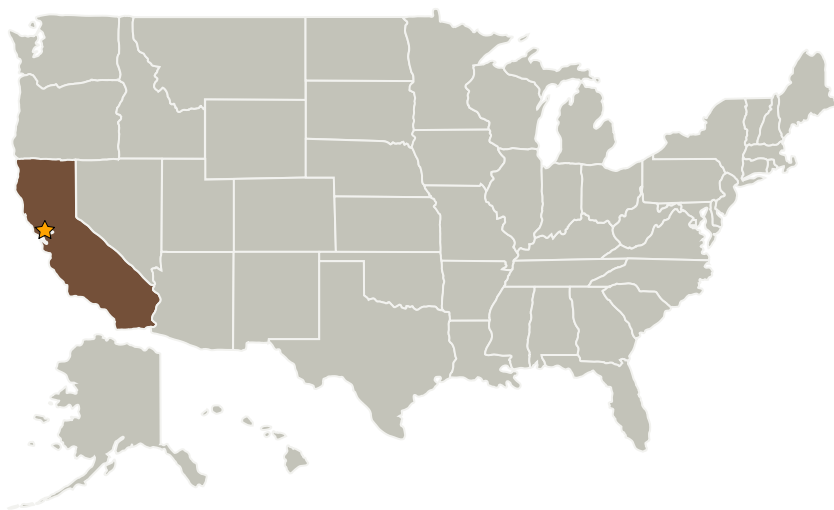
Project Introduction

This CIF will evaluate the viability by answering the following questions. Are the as-flown COMARS+ sensors and the backshell entry environment of the NF-4 and Discovery missions (Saturn, Venus, Titan and sample return) compatible? If not, can the sensors be modified by DLR to meet the backshell environment in a timely manner? Finally, is it feasible to accommodate the COMARS+ sensor on backshell for these NASA missions? Since the TPS for each of these mission design might use different materials, assessing accommodation is part of determining viability. This proposal PI has started engaging some of the NF-4 and Discovery-2014 competed proposals as shown in the attached advocacy letters.

Anticipated Benefits

Uncertainties in aerothermal environment predictions and a lack of flight-validated thermal response models translate to both risk and excessive mass margin in planetary entry vehicle's thermal protection systems (TPS). This knowledge gap adversely impacts both the heatshield and backshell TPS designs

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Ames Research Center (ARC)

Responsible Program:

Center Innovation Fund: ARC CIF

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Organizations Performing Work	Role	Type	Location
★ Ames Research Center(ARC)	Lead Organization	NASA Center	Moffett Field, California
European Space Agency(ESA)	Supporting Organization	International	Paris, Outside the United States, France
German Aerospace Agency(DLR)	Supporting Organization	International	Cologne, Outside the United States, Germany

Primary U.S. Work Locations

California

Project Management

Program Director:

Michael R Lapointe

Program Manager:

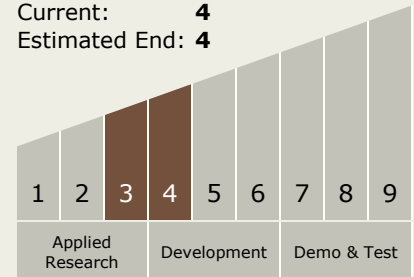
Harry Partridge

Principal Investigator:

Ethiraj Venkatapathy

Technology Maturity (TRL)

Start: 3
 Current: 4
 Estimated End: 4



Technology Areas

Primary:

- TX14 Thermal Management Systems
 - TX14.3 Thermal Protection Components and Systems
 - TX14.3.5 Thermal Protection System Instrumentation